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ADDITIONAL NOTICES.

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1. *Note on the frequent Omission of Readings of the Barometer and Thermometer in Sextant Observations for the Determination of Latitude and Longitude.* By EDWIN DUNKIN, Esq.

(Extracted from the 'Monthly Notices of the Royal Astronomical Society,'
vol. xxiv. p. 121.)

IN offering the following remarks on a subject which has lately given me much trouble, I think it may be useful to call the attention of those members of the Society who are interested in astro-geographical investigations to a most important fact. It appears that, in the determination of latitudes and longitudes by the sextant, while the greatest care has generally been taken by travellers in the astronomical part of the observations of meridian altitudes, local time, or lunar distances, leaving really nothing more to be desired in that direction ;—corresponding observations of the variations in the condition of the atmosphere are frequently omitted, notwithstanding that they are such important elements in the deduction of the proper correction for refraction. This omission is to be regretted, even when the traveller keeps a meteorological journal, as the observations in this instance are generally confined to a few readings daily, which differ considerably, especially the temperature, from what would be recorded about the time of the sextant observation.

These few considerations have occurred to me during the discussion of Capt. J. H. Speke's astronomical observations, the reduction of which was performed under my superintendence. So far as Capt. Speke's observations are concerned, I have nothing but the most unqualified commendation, and I have felt personally indebted to him for the general accuracy and order, as exhibited in the whole of his astronomical records from Zanzibar to Gondokoro. The object of these remarks is, therefore, not to complain of, nor even to criticise, what is already performed, but simply to offer a suggestion which might be available for the future.

As a result of the absence of corresponding meteorological observations, I have been informed that it has frequently been the practice in the reduction of lunar distances, &c., to extract the correction for refraction from a table, constructed with a barometer reading of 30 inches and a thermometer reading of 50°, without any regard to the condition of the atmospheric pressure, or of the temperature of the air at the time of observation. For nautical purposes, this rough method may in general be sufficiently accurate ; but when the observing station is elevated several thousand feet above the level of the sea, and when the resulting longitude is intended to fix permanently the geographical position of the place, the effect of the decreased atmospheric pressure becomes of the highest importance, and ought on no account to be neglected.

To exhibit the effect of this omission, I have given as examples, though by no means extreme cases, two different results for longitude with the lunar distances corrected and uncorrected for the variations in the readings of the barometer and thermometer. In the reduction of Capt. Speke's astronomical observations, I was obliged to assume these readings, in consequence of no

